

CLAIMS

1. A silane polymer having a weight average molecular weight in terms of polystyrene measured by gel permeation chromatography of 800 to 5,000.

2. A method for producing a silane polymer which comprises irradiating a photopolymerizable silane compound with light of specific wavelength range to produce the silane polymer of claim 1.

3. The method of claim 2, wherein the photopolymerizable silane compound is in the form of a liquid or solution.

15

4. The method of claim 2 or 3, wherein the photopolymerizable silane compound is at least one selected from the group consisting of a chain silane compound represented by the formula:

20 Si_iX_{2i+2}

(wherein X is a hydrogen atom or a halogen atom, and i is an integer of 2 to 10),

a cyclic silane compound represented by the formula:

 Si_jX_{2j}

25 (wherein X is a hydrogen atom or a halogen atom, and j is an integer of 3 to 10),

a cyclic silane compound represented by the formula:

 Si_mX_{2m-2}

(wherein X is a hydrogen atom or a halogen atom, and m is an integer of 4 to 10),

and a basket-shaped silane compound represented by the formula:

 Si_kX_k

(wherein X is a hydrogen atom or a halogen atom, and k is 6,

8 or 10).

5. The method of claim 2, wherein the light of specific wavelength range comprises light having a wavelength of 300
5 to 420 nm.

6. The method of claim 2, wherein the irradiation time is 0.1 seconds to 600 minutes.

10 7. A silicon film forming composition comprising the silane polymer of claim 1 and an organic solvent.

8. The composition of claim 7, further comprising a material containing an element of the 3B group or a material
15 containing an element of the 5B group in the periodic table.

9. A method for forming a silicon film which comprises applying the composition of claim 7 or 8 on a substrate and subjecting the resulting coating film to at least one of a
20 heat treatment and a light treatment.

10. The method of claim 9, wherein the organic solvent contained in the composition is selectively removed before any of the heat treatment and the light treatment is carried
25 out after the application.